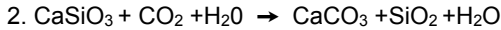


1. Which of these two reservoirs contain approximately the same amount of carbon

- a. oceans and rocks
- b. atmosphere and biosphere**
- c. biosphere and oceans



This reaction, read left to right, represents

- a. metamorphic degassing and weathering
- b. weathering and deposition**
- c. deposition and metamorphism

3. If the discount rate were to decrease from 4% to 2%, the value of future goods would

- a. increase**
- b. decrease
- c. say the same

4. Which of the following greenhouse gases is responsible for the fact that nights tend to be cooler in desert areas.

- a. carbon dioxide
- b. water vapor**
- c. methane
- d. ozone

5. Carbon often combines with different atoms to form different molecules in the carbon cycle. In which of these processes does carbon change from being a part of an ion in solution to an atom in a solid compound.

- a. biochemical precipitation**
- b. metamorphic degassing
- c. weathering
- d. compaction

Examine the table then answer questions 6 and 7. The reservoirs have two inflows and two outflows. For example, the atmosphere reservoir receives CO_2 inflow from the biosphere and hydrosphere reservoirs.

reservoir	size	Influx 1	Influx 2	Outflow 1	Outflow 2
A	1000	100	100	100	100
B	2000	200	100	200	200
C	10000	8000	1000	6000	3000

6. In which of the three reservoirs is the residence time shortest?

- a. A
- b. B
- c. C**

7. Which reservoir is decreasing in size?

- a. A
- b. B**
- c. C

The next two questions refer to direct affects. An example of a direct affect would be... If you studied more you probably would do better on a test and earn a better grade in the course. An indirect affect would be if you studied more, you probably would do better on a test but that might lead you to study less on the next test which would lower your grade.

8. As the planet warms, more glaciers will melt and this will affect the earth's albedo causing

- a. **more warming**
- b. less warming
- c. neither

9. As the planet warms, more glaciers will melt and this will affect the amount of water in the oceans causing.

- a. more warming
- b. less warming
- c. **neither**

10. Which of the following approaches to dealing with climate change represents the largest moral hazard.

- a. **geoengineering**
- b. conservation
- c. alternative energy

11. Cold ocean water can hold more carbon dioxide gas than warm ocean water. **T**,F

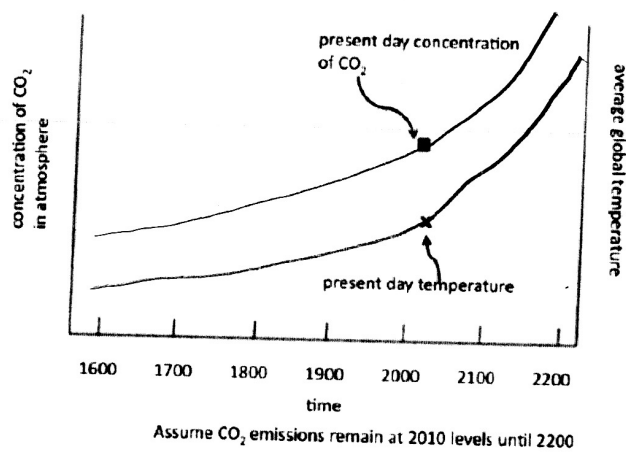
12. Long term climate change (over 10,000 to 100000 yr intervals) occurs at the same intervals as Milankovitch cycles. **T**,F

13. During the 1980's and 1990's there was considerable scientific debate about whether or not human activity is causing global warming. Since 2000, the debate has largely dissipated because evidence showing the human impact on climate is very strong. During the same period of time (2000-present), public opinion has become more aligned with the scientific evidence. **T**,**F**

14. Data from ice cores show that the planet warms faster than it cools. **T**,F

15. As a group, women are more concerned about climate change than men. **T**,F

1. Draw lines showing CO₂ concentrations and temperature from 1600 to 2200, assuming that global CO₂ emissions remain at 2010 levels. 20 pts



2. Scientists predict that global warming will lead to higher winds velocities in many regions. Higher winds will cause more vigorous stirring of the oceans. Explain why this more vigorous stirring may result in a higher concentration of CO₂ in the atmosphere. 10 pts

Stirring the oceans, like shaking a coke, will cause more CO₂ to be degassed from ocean water.

Many of you wrote various about ways stirring could warm the oceans- good thinking. You received full credit.

3. Draw a graph comparing linear change to change involving positive feedback. 20 pts

